

Distribution of Hake in European Waters

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Introduction

The European Hake (*Merluccius merluccius* L.) is widely distributed species along the Continental Shelf and Shelf edge in the European waters (Casey and Pereiro 1995). The area of distribution extends from the coast of Mauritania as Southern limit to the Norwegian Sea in the North, also extends eastwards into the North Sea, Skagerrak and Kattegat and into the Mediterranean Sea.

Material and Methods

Historical data record of the Hake commercial catch data and the bottom trawl surveys were supplied by the participants in SEFOS Project AIR2- CT93- 1105. The information available is presented in Tables 1 and 2.

International commercial catch data was mapped by quarter and ICES statistical rectangle for the years 1986, 1989 and 1992.

Data from bottom trawl surveys conducted in the fourth quarter for the same years (1986, 1989 and 1992) they are presented showing the ground fish survey coverage (number of hauls by statistical rectangles) and total age composition by survey/zone indicating the number of hakes caught. The age classes were 0 to 4 and 5 as plus group.

The total length composition of each bottom trawl survey were converted to age compositions, using the same length to age numerical conversion (Kimura and Chikuni 1987) adopted by the Working Group on the assessment of Southern Shelf Demersal Stocks (Anon 1994) taking into consideration the area of distribution of the Northern and Southern stocks of Hake.

Results

The main fishing grounds of European Hake are located in the Bay of Biscay, South and West Ireland and around the Iberian Peninsula. No significant differences can be observed among years in the distribution of the catches by quarter and statistical rectangles.

Age compositions by zone in the fourth quarter bottom trawl surveys indicate that the shelf of the Bay of Biscay (Divisions VIIIab) and the North and Northwest shelf of the Iberian Peninsula (Division VIIIc and IXa north) are the main nursery grounds for Hake in European waters. The distribution of the older ages in the more Northern (Subareas VI and VII) and Southern areas (Division IXa) could indicate movements from Southern to Northern grounds in the so call Northern stock and from the Northern to the Southern grounds in the Southern stock.

References

Anon 1994. Report of the Working Group on the assessment of Southern Shelf Demersal Stocks. ICES CM 1994 / Assess :3 447 pp.

Casey J. and Pereiro J. 1995. European Hake (*M. merluccius*) in the North - east Atlantic. Chapman & Hall. Fish and Fisheries Series 15 :125-147.

Kimura D.K. and Chikuni S. 1987. Mixtures of empirical distributions: an iterative application of the age-length key. Biometrics, 43: 23-35.

COMMERCIAL CATCH DATA						
YEAR	COUNTRY					
	FRANCE	NETHERLANDS	PORTUGAL	ENGLAND	SCOTLAND	SPAIN
1977	-	-	-	Y	Y	-
1980	-	-	-	Y	Y	-
1981	-	-	-	-	-	-
1982	-	-	-	-	-	-
1983	-	-	Y	Y	Y	Y
1984	-	-	-	-	-	Y
1985	Y	-	-	-	-	Y
1986	Y	-	Y	Y	Y	Y
1987	Y	-	-	-	-	Y
1988	Y	-	-	-	-	Y
1989	Y	-	Y	Y	Y	Y
1990	Y	-	-	-	-	Y
1991	Y	-	-	-	-	Y
1992	Y	-	Y	Y	Y	Y
1993	Y	-	-	-	-	Y
1994	Y	-	Y	-	Y	Y
1995	Y	-	Y	-	-	Y

Table 1 .- Commercial Catch Data by Country and Year

BOTTOM TRAWL SURVEYS DATA						
YEAR	COUNTRY					
	FRANCE	NETHERLANDS	PORTUGAL	ENGLAND	SCOTLAND	SPAIN
1981	-	-	4		1	-
1982	-	-	4	4	1	-
1983	-	-	4	4	1	3-4
1984	-	-	-	1-2,4	1	3
1985	-	-	4	1-2,4	1,4	3
1986	-	-	4	1-2,4	1,4	3-4
1987	4	4	4	1-2,4	1,4	-
1988	4	4	4	1-2,4	1,4	3-4
1989	3-4	4	4	1-2	1,4	3-4
1990	3-4	4	3,4	1-2	1,4	3-4
1991	2	4	3,4	1-2	1,4	3-4
1992	3-4	4	1,3,4	1-2	1,4	3-4
1993	-	4	1,2-3,4	1-2	1,4	3-4
1994	3-4	-	-	1-2	1,4	3-4
1995	3-4	-	-	1-2	1,4	
1996	-	-	-	-	1	

Table 2 .- Hake Survey Data Received by Country and Quarter

HAKE CATCHES (tons) 1986

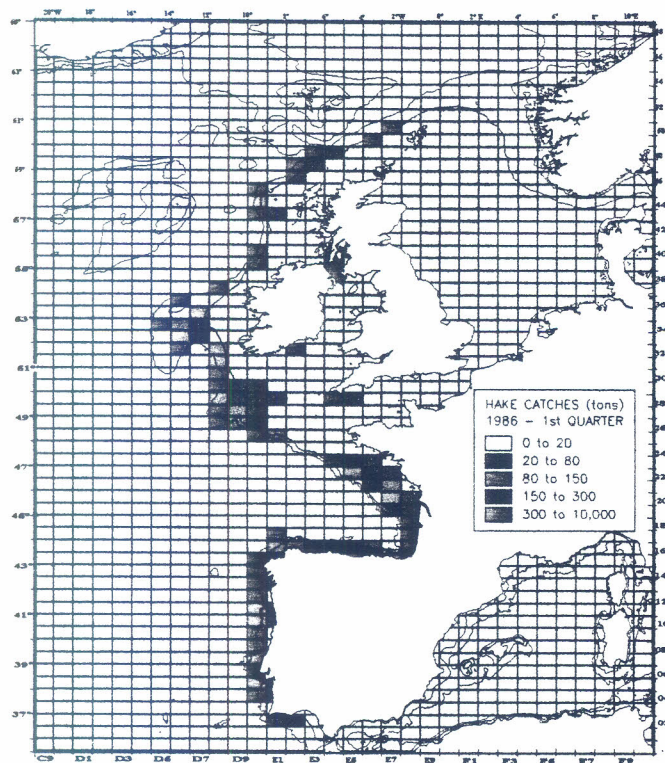


FIGURE 1 .- 1st QUARTER

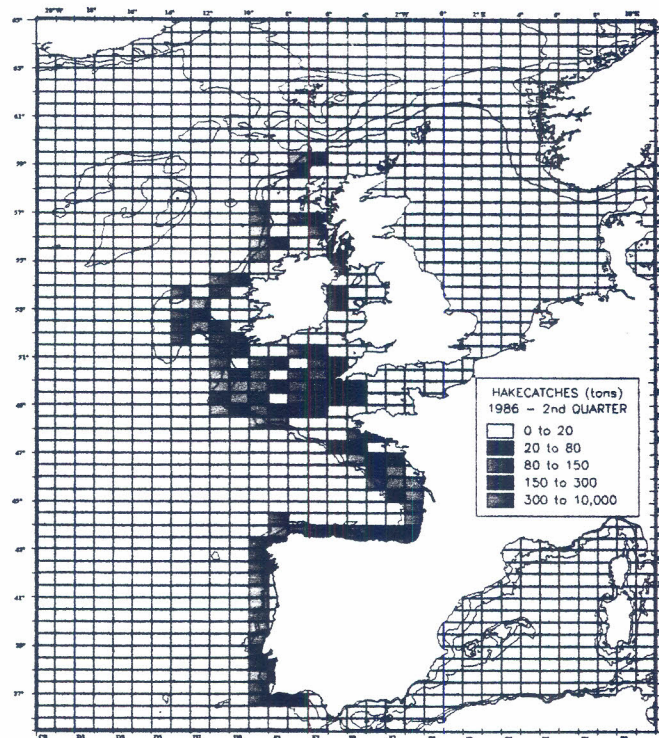


FIGURE 2 .- 2nd QUARTER

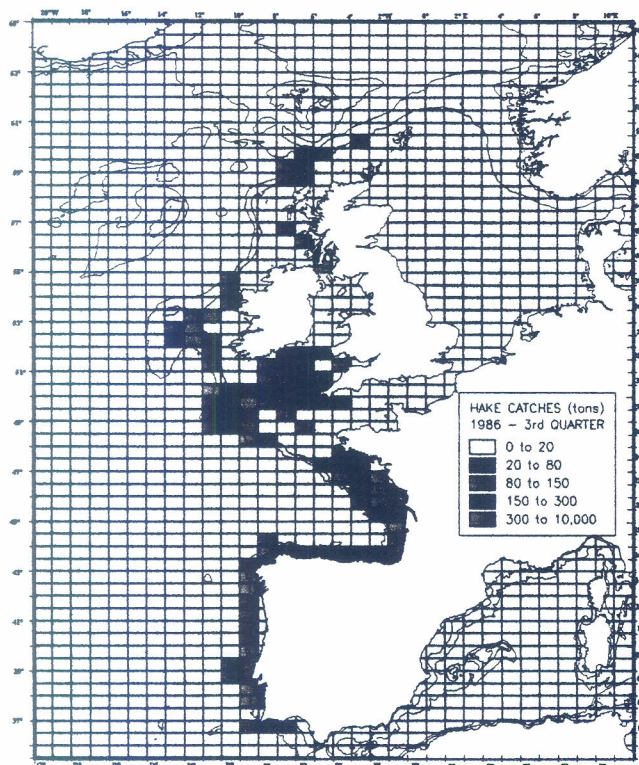


FIGURE 3 .- 3rd QUARTER

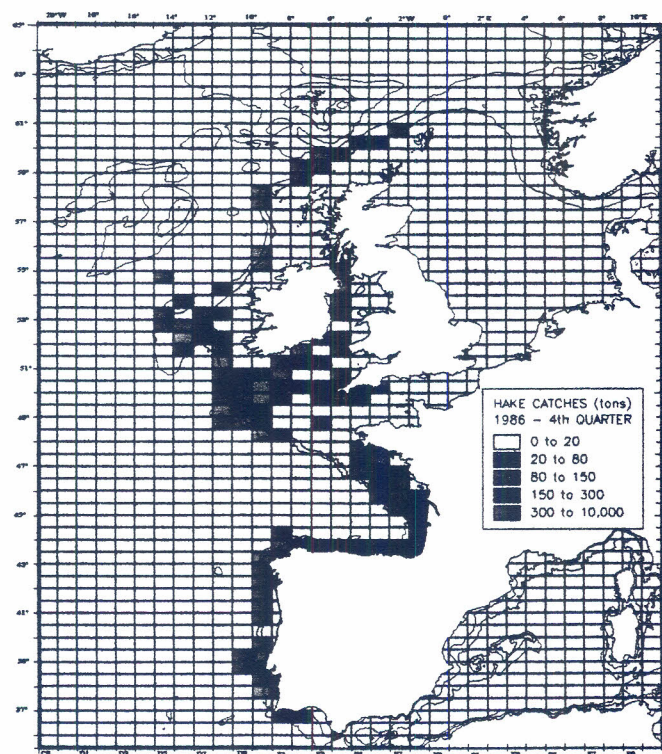


FIGURE 4 .- 4th QUARTER

HAKE CATCHES (tons) 1989

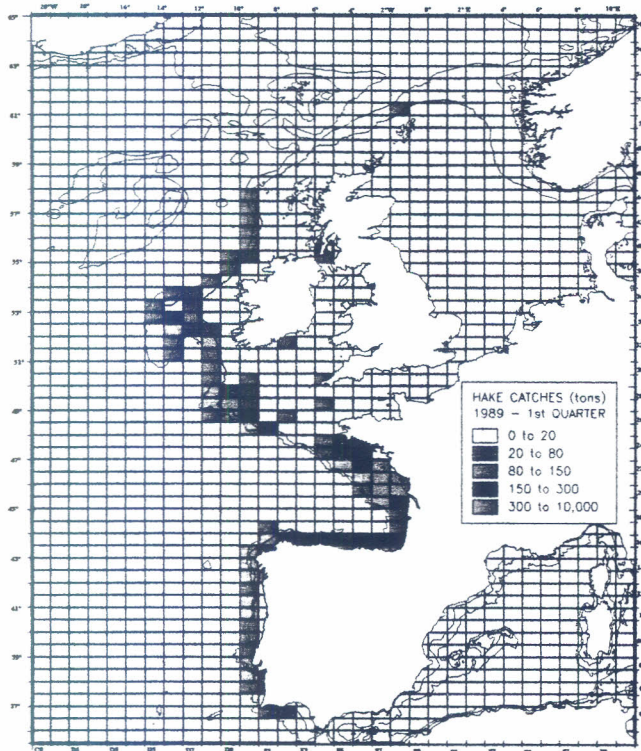


FIGURE 1 .- 1st QUARTER

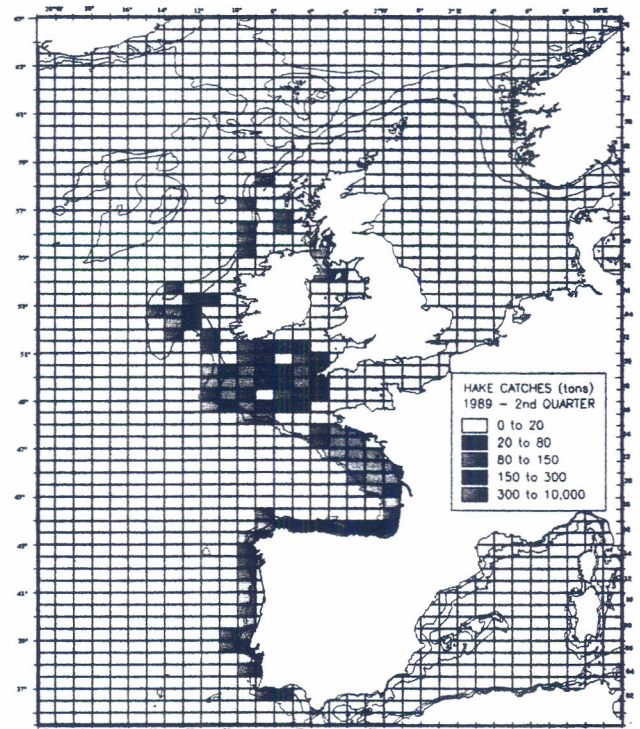


FIGURE 2 .- 2nd QUARTER

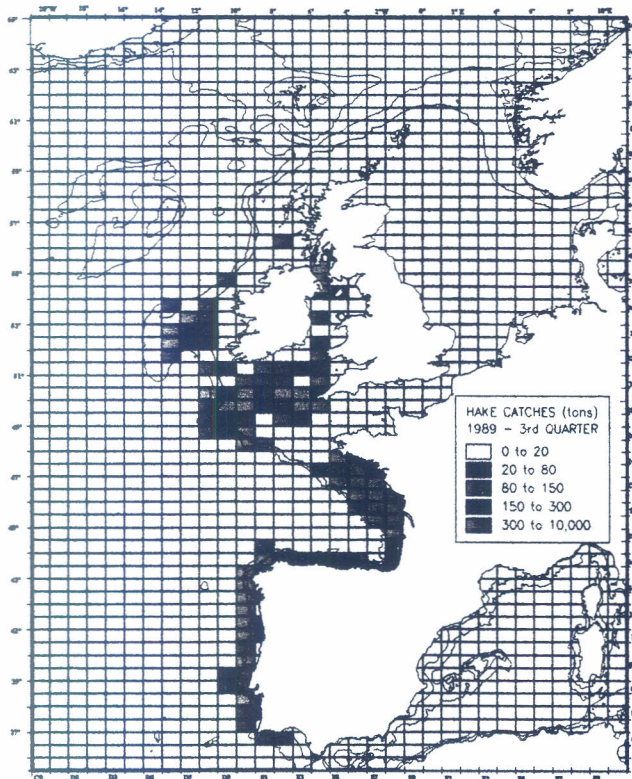


FIGURE 3 .- 3rd QUARTER

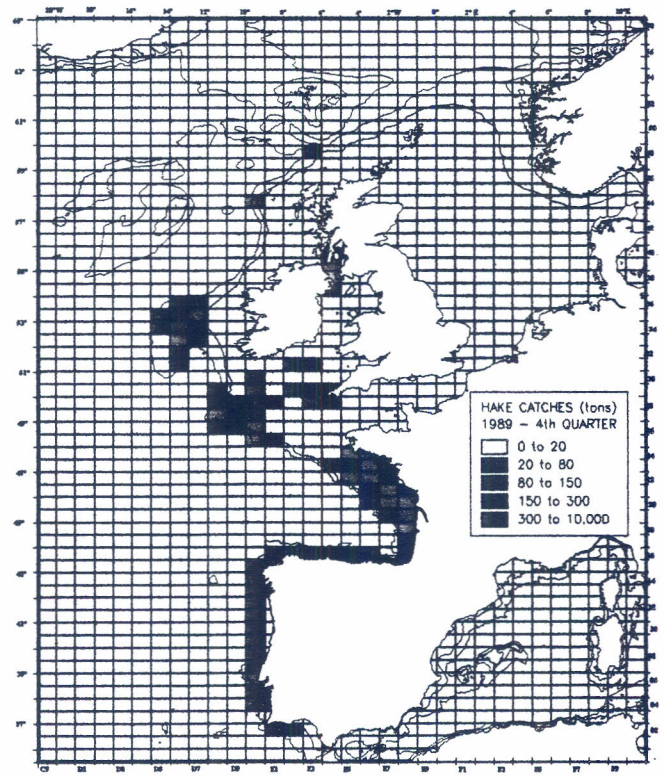


FIGURE 4 .- 4th QUARTER

HAKE CATCHES (tons) 1992

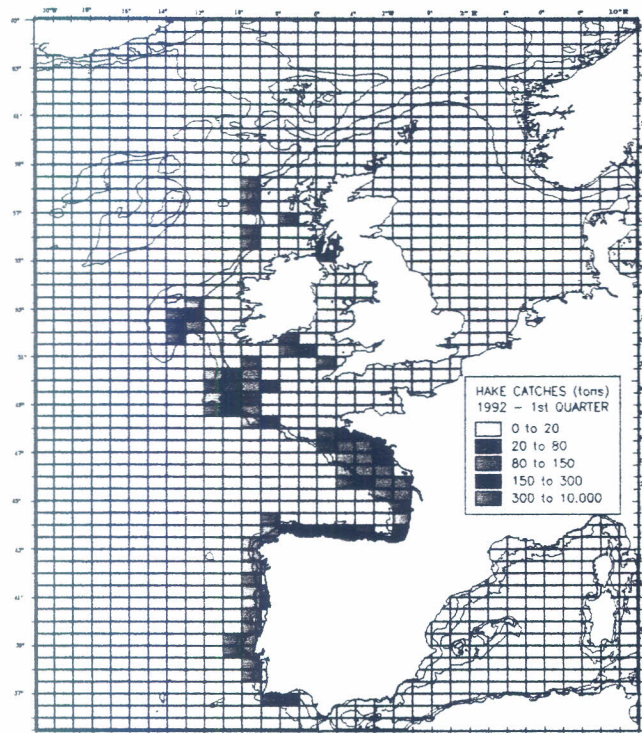


FIGURE 1 .- 1st QUARTER

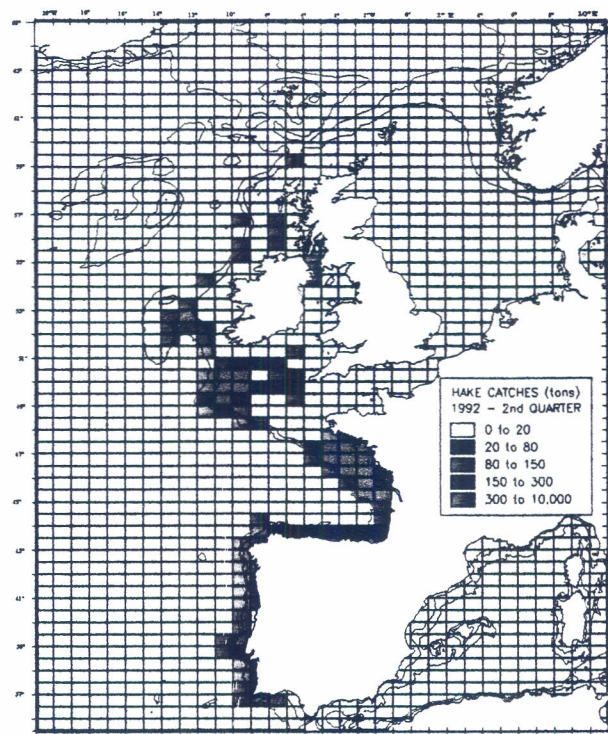


FIGURE 2 .- 2nd QUARTER

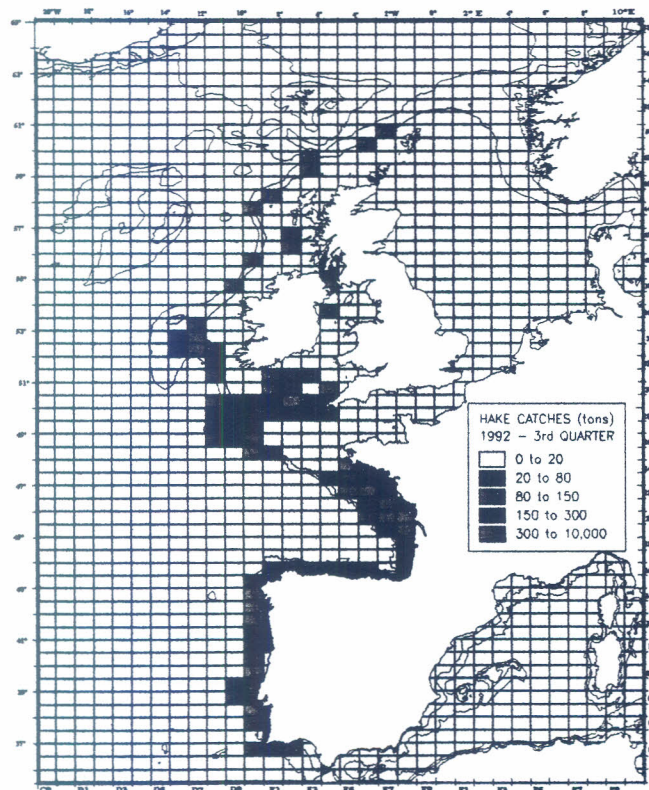


FIGURE 3 .- 3rd QUARTER

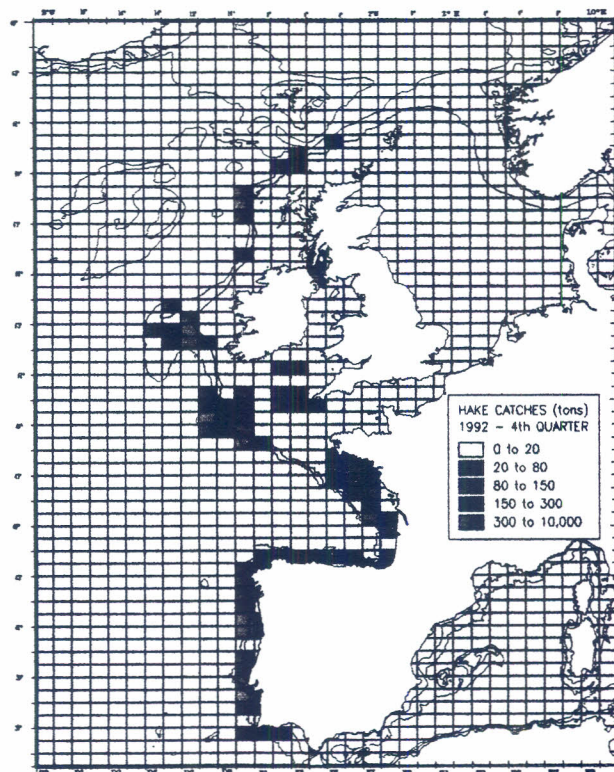
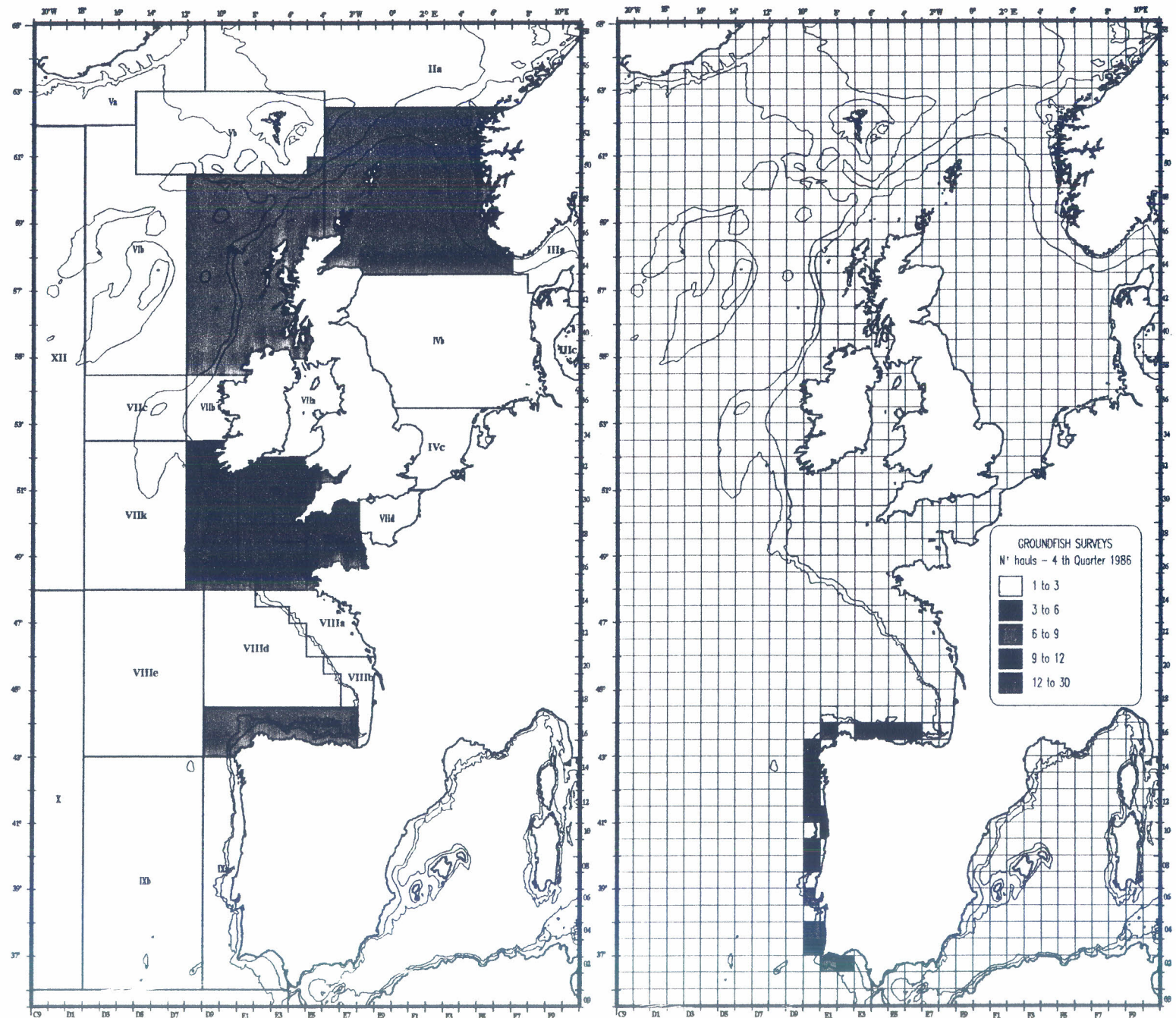
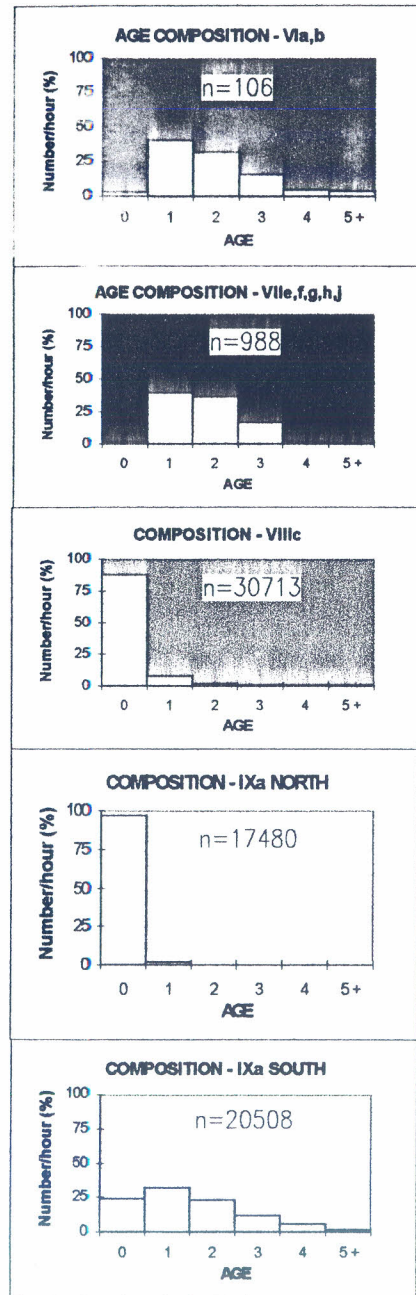
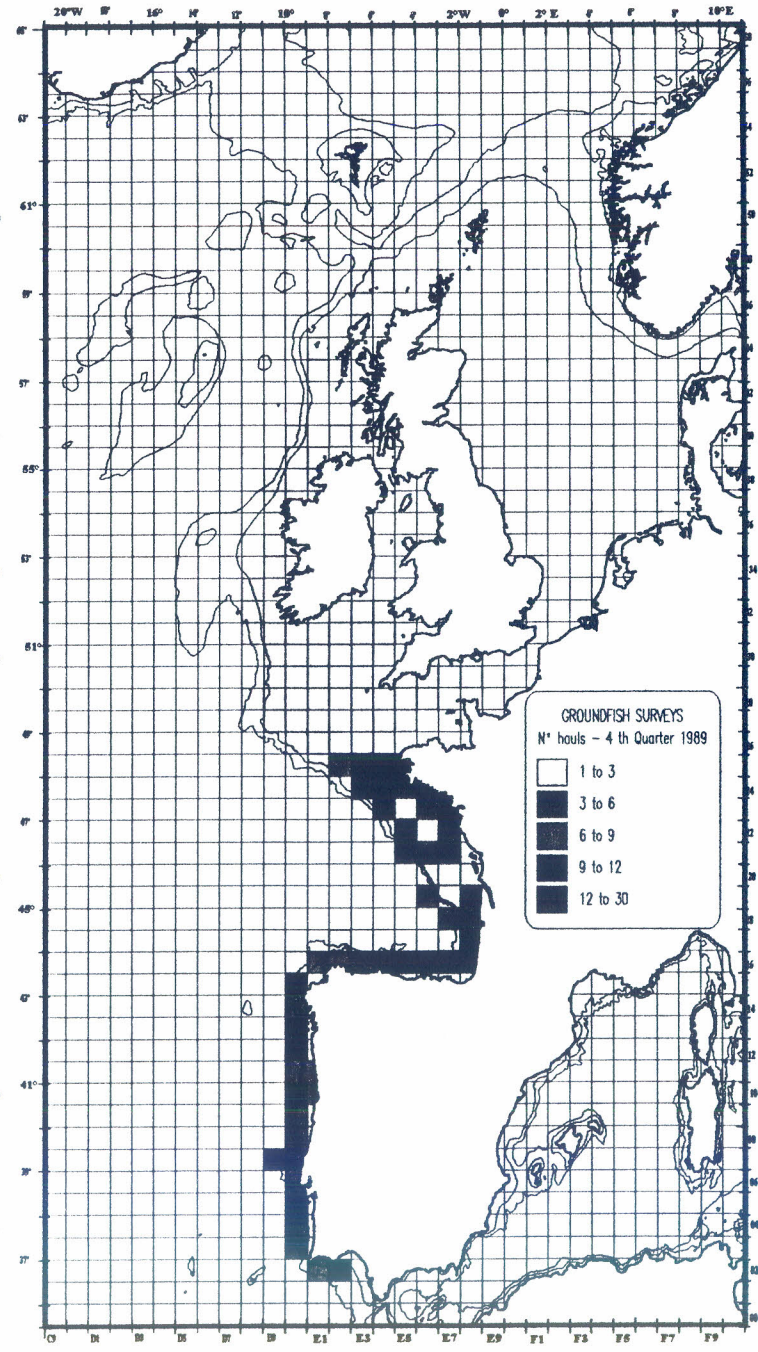
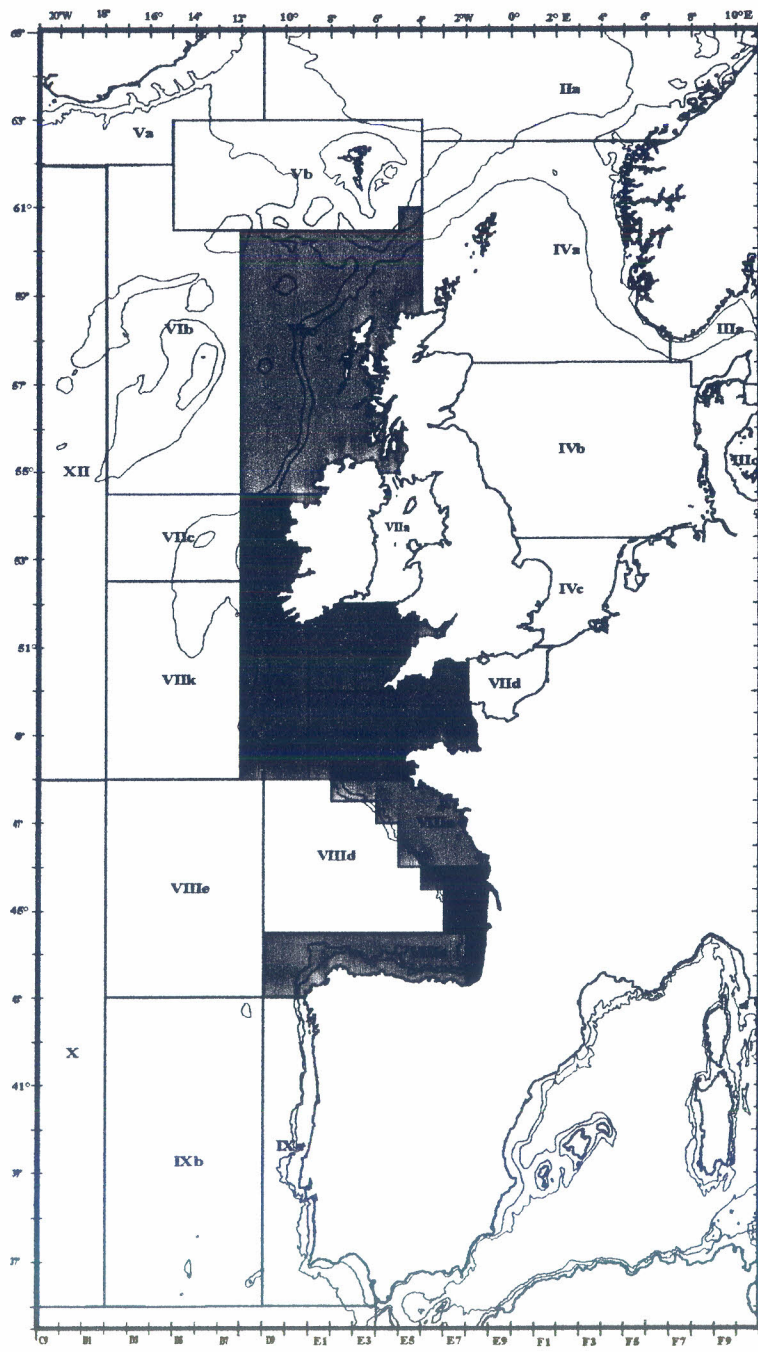
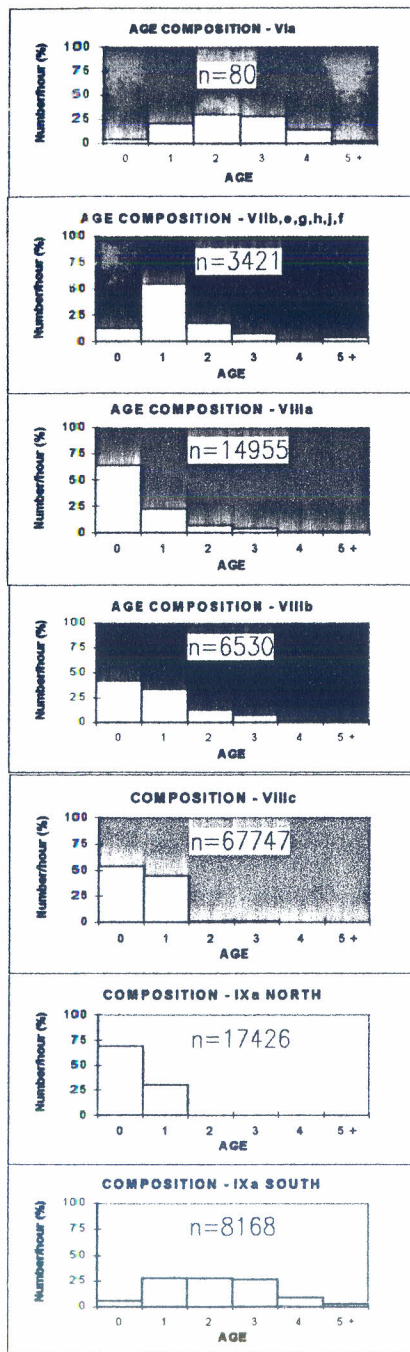


FIGURE 4 .- 4th QUARTER

GROUND FISH SURVEYS - 4 th Quarter 1986



GROUNDFISH SURVEYS - 4th Quarter 1989



GROUNDFISH SURVEYS - 4th Quarter 1992

